

IN THE CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the application:

C' Claim 1 (Currently Amended): A process for producing -form tris-(2,3-epoxypropyl)-isocyanurate crystals containing from 2 to 15 wt% of -form tris-(2,3-epoxypropyl)-isocyanurate in the interior of the crystals, ~~consisting essentially of~~ comprising:

(A) reacting cyanuric acid with epichlorohydrin to form an addition product of cyanuric acid and epichlorohydrin and dehydrochlorinating said product to obtain an aqueous reaction solution containing tris-(2,3-epoxypropyl)-isocyanurate,

(B) removing epichlorohydrin from said reaction solution and dissolving tris-(2,3-epoxypropyl)-isocyanurate in an organic solvent, wherein said solvent is acetonitrile, toluene, dioxane or dimethylformamide,

(C) gradually cooling the solution of (B) at a cooling rate within 20 C/hr to crystallize tris-(2,3-epoxypropyl)-isocyanurate and filtering to obtain crystals of tris(2,3-epoxypropyl)-isocyanurate, and

(D) washing and drying said crystals, wherein said crystals have a remaining ~~hydrolyzable chlorine~~ epichlorohydrin content of at most 100 ppm.

Claim 2 (Previously Amended): The process according to Claim 1, wherein (A) comprises reacting (a) 1 mol of cyanuric acid, (b) from 5 to 180 mols of epichlorohydrin and (c) a catalyst of from 0.001 to 0.1 mol of at least one compound selected from the group consisting of a tertiary amine, a quaternary ammonium salt, a quaternary ammonium base, a tri substituted phosphine and a quaternary phosphonium salt to obtain said reaction solution, adding from 2 to 6 mols of an alkali metal hydroxide or an alkali metal alcoholate to said

C' reaction solution for dehydrochlorination, and removing the resulting alkali metal salt to obtain said reaction solution containing tris (2,3-epoxypropyl) isocyanurate.

Claim 3 (Canceled).

Claim 4 (Previously Amended): The process according to Claim 1, wherein ultrasonic waves are applied to said solution in said gradually cooling said solution in (C).

Claim 5 (Previously Amended): The process according to Claim 1, wherein said washing in (D) is carried out by using a solvent capable of providing a solubility of at least 0.5 g/100 g at 20°C to α form tris (2,3-epoxypropyl) isocyanurate and a solubility of less than 0.5 g/100 g at 20°C to β form tris (2,3-epoxypropyl) isocyanurate, in an amount of from 0.5 to 10 times by weight relative to the β form tris (2,3-epoxypropyl) isocyanurate crystals.

Claim 6 (Previously Amended): The process according to Claim 1, wherein the average particle size of said crystals obtained in (C) is from 20 to 500 μm , and said drying in (D) is carried out under atmospheric pressure or under reduced pressure in a gas stream at a temperature of from 120 to 140°C.

Claim 7 (Previously Amended): The process according to Claim 1, wherein the average particle size of said crystals obtained in (C) is from 10 to 20 μm , and said drying in (D) is carried out under atmospheric pressure or under reduced pressure in a gas stream at a temperature of from 40 to 120°C.

C¹ Claim 8 (Currently Amended): A process for producing γ -form tris-(2,3-epoxypropyl)-isocyanurate crystals containing from 2 to 15 wt% of γ -form tris-(2,3-epoxypropyl)-isocyanurate in the interior of the crystals, comprising:

(A) reacting cyanuric acid with epichlorohydrin to form an addition product of cyanuric acid and epichlorohydrin and dehydrochlorinating said product to obtain an aqueous reaction solution containing γ -(2,3-epoxypropyl)-isocyanurate,

(B) removing epichlorohydrin from said reaction solution and dissolving tris-(2,3-epoxypropyl)-isocyanurate in an organic solvent, wherein said solvent is acetonitrile, toluene, dioxane or dimethylformamide,

(C) adding seed crystals to the solution of (B) at a temperature lower by from 5 to 20 C than the temperature at which said solution forms a saturated solution, and gradually said cooling solution at a cooling rate within 20 C/hr to crystallize tris-(2,3-epoxypropyl)-isocyanurate, and filtering to obtain crystals of tris-(2,3-epoxypropyl)-isocyanurate, and

(D) washing and drying said crystals, wherein said crystals have a remaining ~~hydrolyzable chlorine~~ epichlorohydrin content of at most 100 ppm.

Claim 9 (Previously Amended): The process according to Claim 8, wherein (A) comprises reacting (a) 1 mol of cyanuric acid, (b) from 5 to 180 mols of epichlorohydrin and (c) a catalyst of from 0.001 to 0.1 mol of at least one compound selected from the group consisting of a tertiary amine, a quaternary ammonium salt, a quaternary ammonium base, a tri substituted phosphine and a quaternary phosphonium salt to obtain a reaction solution, adding from 2 to 6 mols of an alkali metal hydroxide or an alkali metal alcoholate to said reaction solution for dehydrochlorination, and removing the resulting alkali metal salt to obtain said reaction solution containing tris (2,3-epoxypropyl) isocyanurate.

C'
Claim 10 (Canceled).

Claim 11 (Previously Amended): The process according to Claim 8, wherein said addition of said seed crystals in (C') satisfies the following formulae (1) and (2):

$$1 \times 10^{10} \geq T \geq 1 \times 10^2 \quad (1)$$

$$T = 1.4 \times 10^{12} (m/(MxD^3)) \quad (2)$$

wherein T is the number of said seed crystals added per the weight of tris (2,3-epoxypropyl)-isocyanurate in said reaction solution (number/g), m is the weight (g) of said seed crystals added, D is the average particle size of said seed crystals which is from 2 to 300 μm , and M is the weight (g) of tris (2,3-epoxypropyl) isocyanurate in the reaction solution.

Claim 12 (Previously Amended) The process according to Claim 8, wherein said seed crystals added in (C') are β form tris (2,3-epoxypropyl) isocyanurate crystals, or a mixture of β form tris (2,3-epoxypropyl) isocyanurate crystals and α form tris (2,3-epoxypropyl)-isocyanurate crystals.

Claim 13 (Previously Amended): The process according to Claim 8, wherein ultrasonic waves are applied to said solution in said gradually cooling said solution in (C').

Claim 14 (Previously Amended): The process according to Claim 8, wherein said washing in (D) is carried out by using a solvent capable of providing a solubility of at least 0.5 g/100 g at 20°C to α form tris (2,3-epoxypropyl) isocyanurate and a solubility of less than

C' 0.5 g/100 g at 20°C to β form tris (2,3-epoxypropyl) isocyanurate, in an amount of from 0.5 to 10 times by weight relative to the β form tris (2,3-epoxypropyl) isocyanurate crystals.

Claim 15 (Previously Amended): The process according to Claim 8, wherein the average particle size of said crystals obtained in (C') is from 20 to 500 μm , and said drying in (D) is carried out under atmospheric pressure or under reduced pressure in a gas stream at a temperature of from 120 to 140°C.

Claim 16 (Previously Amended): The process according to Claim 8, wherein the average particle size of said crystals obtained in (C') is from 10 to 20 μm , and said drying in (D) is carried out under atmospheric pressure or under reduced pressure in a gas stream at a temperature of from 40 to 120°C.

Claim 17 (Currently Amended): A process for producing β form tris (2,3-epoxypropyl) isocyanurate crystals containing from 2 to 15 wt% of α -form tris (2,3-epoxypropyl) isocyanurate in the interior of the crystals, comprising:

(A) reacting cyanuric acid with epichlorohydrin to form an addition product of cyanuric acid and epichlorohydrin and dehydrochlorinating said product to obtain a an aqueous reaction solution containing tris (2,3-epoxypropyl) isocyanurate,

(B) removing epichlorohydrin from said reaction solution ~~by coating a film of said reaction solution on a substrate and heating~~ and dissolving tris (2,3-epoxypropyl)-isocyanurate in a solvent, wherein said solvent is acetonitrile, toluene, dioxane or dimethylformamide,

C' (C'') heating the solution of (B) to a temperature of at least the temperature at which said solution forms a saturated solution, thereafter cooling said solution to a temperature lower by from 5 to 20°C than the temperature at which said solution forms a saturated solution, and adding seed crystals thereto, and then gradually cooling said solution at a cooling rate within 20°C/hr to crystallize tris-(2,3-epoxypropyl)-isocyanurate and filtering to obtain crystals of tris-(2,3-epoxypropyl)-isocyanurate, and

(D) washing and drying said crystals, wherein said crystals have a remaining epichlorohydrin content of at most 100 ppm.

Claim 18 (Previously Amended): The process according to Claim 17, wherein (A) comprises reacting (a) 1 mol of cyanuric acid, (b) from 5 to 180 mols of epichlorohydrin and (c) a catalyst of from 0.001 to 0.1 mol of at least one compound selected from the group consisting of a tertiary amine, a quaternary ammonium salt, a quaternary ammonium base, a tri substituted phosphine and a quaternary phosphonium salt to obtain a reaction solution, adding from 2 to 6 mols of an alkali metal hydroxide or an alkali metal alcoholate to said reaction solution for dehydrochlorination, and then removing the resulting alkali metal salt to obtain said reaction solution containing tris (2,3-epoxypropyl)-isocyanurate.

Claim 19 (Canceled).

Claim 20 (Previously Amended): The process according to Claim 17, wherein said addition of said seed crystals in (C'') satisfies the following formulae (1) and (2):

$$1 \times 10^{10} \geq T \geq 1 \times 10^2 \quad (1)$$

$$T = 1.4 \times 10^{12} (m/(MxD^3)) \quad (2)$$

C' wherein T is the number of said seed crystals added per the weight of tris (2,3-epoxypropyl)-isocyanurate in said reaction solution (number/g), m is the weight (g) of said seed crystals added, D is the average particle size of seed crystals which is from 2 to 300 μm , and M is the weight (g) of tris (2,3-epoxypropyl) isocyanurate in the reaction solution.

Claim 21 (Previously Amended): The process according to Claim 17, wherein said seed crystals added in (C'') are β form tris (2,3-epoxypropyl) isocyanurate crystals, or a mixture of β form tris (2,3-epoxypropyl) isocyanurate crystals and α -form tris (2,3-epoxypropyl)-isocyanurate crystals.

Claim 22 (Previously Amended): The process according to Claim 17, wherein ultrasonic waves are applied to said solution in the process of gradually cooling said solution in (C'').

Claim 23 (Previously Amended): The process according to Claim 17, wherein said washing in (D) is carried out by using a solvent capable of providing a solubility of at least 0.5 g/100 g at 20°C to α -form tris (2,3-epoxypropyl) isocyanurate and a solubility of less than 0.5 g/100 g at 20°C to β form tris (2,3-epoxypropyl) isocyanurate, in an amount of from 0.5 to 10 times by weight relative to the β form tris (2,3-epoxypropyl) isocyanurate crystals.

Claim 24 (Previously Amended): The process according to Claim 17, wherein the average particle size of said crystals obtained in (C'') is from 20 to 500 μm , and said drying in (D) is carried out under atmospheric pressure or under reduced pressure in a gas stream at a temperature of from 120 to 140°C.

C'

Claim 25 (Previously Amended): The process according to Claim 17, wherein the average particle size of said crystals obtained in (C'') is from 10 to 20 μm , and said drying in (D) is carried out under atmospheric pressure or under reduced pressure in a gas stream at a temperature of from 40 to 120°C.

Claim 26 (Previously Added): The process according to Claim 1, wherein said removing epichlorohydrin is carried out by coating a film of said reaction solution on a substrate and heating.

Claim 27 (Previously Added): The process according to Claim 26, wherein said heating is from 100 to 165°C.

Claim 28 (Previously Added): The process according to Claim 26, wherein said removing epichlorohydrin is carried out under reduced pressure.

Claim 29 (Previously Added): The process according to Claim 26, wherein said film has a thickness of from 30 to 500 micron.

Claims 30-35 (Cancelled).

Claim 36 (New): The process according to Claim 8, wherein said removing epichlorohydrin is carried out by coating a film of said reaction solution on a substrate and heating.

c'

Claim 37 (New): The process according to Claim 36, wherein said heating is from 100 to 165°C.

Claim 38 (New): The process according to Claim 36, wherein said removing epichlorohydrin is carried out under reduced pressure.

Claim 39 (New): The process according to Claim 36, wherein said film has a thickness of from 30 to 500 micron.

Claim 40 (New): The process according to Claim 17, wherein said removing epichlorohydrin is carried out by coating a film of said reaction solution on a substrate and heating.

Claim 41 (New): The process according to Claim 40, wherein said heating is from 100 to 165°C.

Claim 42 (New): The process according to Claim 40, wherein said removing epichlorohydrin is carried out under reduced pressure.

Claim 43 (New): The process according to Claim 40, wherein said film has a thickness of from 30 to 500 micron.
